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American Fern Journal

Vol. 8 JANUARY–MARCH, 1918 No. 1

A new hybrid Asplenium[1]

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Among the ferns forwarded to the National Museum for identification during the past year are the very interesting specimens forming the subject of this article. They were collected from sandstone cliffs of Sand Mountain, about two and one-half miles west of Trenton, Georgia, by Mr. E. W. Graves. The first ones sent in were regarded doubtfully by Mr. Graves as an aberrant form or variety of *Asplenium pinnatifidum*. In the light of further field study, however, and from examination of the additional specimens secured, it appears nearly certain that this form is instead a natural hybrid between *Asplenium Bradleyi* and *A. pinnatifidum*, with which it habitually grows.

At the request of Mr. Graves the hybrid is described below. It is a pleasure to commemorate in this connection the name of the persistent and discriminating collector.

Asplenium Gravesii Maxon, hybr. nov.

Intermediate between *A. Bradleyi* D. C. Eaton and *A. pinnatifidum* Nutt., the fronds few or several, loosely fasciculate, ascending, 10 to 13 cm. long; rhizome decumbent or short-creeping, 1 to 1.5 cm. long, densely paleaceous, the scales about 5 mm. long, linear, long-

[1] Published with the permission of the Secretary of the Smithsonian Institution.

[Vol. 7, No. 4 of the JOURNAL (pp. 99–130, Plates 5 and 6) was issued Feb. 23, 1918. This is the correct date, not Dec. 17, 1917, as printed in the Contents of Vol. 7.]

attenuate from the very narrow base (about 0.5 mm. broad), rigid, the cells with moderately thick, dark reddish brown, sclerotic partition walls and transparent outer walls, the lumina large; stipe 2 to 7 cm. long, glossy purplish brown nearly or quite throughout, rounded beneath, the upper face flat to sulcate; lamina narrowly triangular, 3 to 8 cm. long, 1.5–2.8 cm. broad, pinnate in the basal part, subpinnate above; rachis usually greenish, flat, and distinctly but narrowly winged (sulcate anteriorly near the base), or in the largest plants more slender, glossy brown, and only faintly greenish-marginate toward the base, both stipe and rachis bearing a few tortuous fibril-like scales; basal pinnae distant, opposite, sessile, triangular, nearly equilateral, subcordate at the base, obtuse or acutish, shallowly crenate-dentate or, in the larger fronds, pinnatifid at the base, the resulting pair of rounded lobes adnate or subsessile; succeeding pinnae or segments gradually smaller, narrower, simpler, and more broadly connected, finally contiguous or even imbricate, passing evenly into the lobate, long-acuminate apex; leaf-tissue rigidly herbaceous or subcoriaceous, the under surface bearing numerous few-celled clavate glandular hairs, these passing gradually into the gland-tipped capillary scales of the vascular parts; sori abundant, dark brown, confluent, variable in form and position, the indusia firm, white.

Type specimen in the U. S. National Herbarium, no. 764407, collected on Sand Mountain, about 2½ miles west of Trenton, Georgia, on sandstone cliffs, September, 1917, by Mr. E. W. Graves. It was found growing singly in the middle of a clump of *A. pinnatifidum*.

Judging *Asplenium Gravesii* on both gross and minute characters, there can be little doubt of its hybrid nature, making all allowance for the unusually high variability of its supposed parents, of one or the other of which

it might at first be thought an extreme state. It exhibits considerable diversity, however. The smaller, stockier individuals most resemble *A. pinnatifidum* in their wholly green rachises and thick leaf tissue; but they differ from *A. pinnatifidum* very definitely in their fewer fronds, sessile basal pinnae, acuminate (never long-attenuate or filiform) lamina, and brown stipe. The largest individual seen is that selected as the type. This suggests, rather, the more specialized parent, *A. Bradleyi*, since it agrees in thinner leaf texture and slender stipe, and shows an approach to dark brown rachises; it differs from *A. Bradleyi* in its very much simpler pinnae and less sharply cut margins, and in having the rachis at least faintly winged. All the plants of the hybrid agree with *A. Bradleyi* in their dark brown sori, the sori of *A. pinnatifidum* being cinnamon brown. The intermediate dissection of the pinnae has already been indicated; the form of the margins is no less distinctive, being midway between the subentire or crenulate margin of *A. pinnatifidum* and the sharply toothed margin of *A. Bradleyi*. The rhizome scales also are exactly intermediate; they are similar in outline to those of *A. Bradleyi*, but have the cells much smaller and separated by thinner partition walls, in both particulars approaching *A. pinnatifidum*. The spores have not been tested for viability; but that the cross is sometimes fertile seems not improbable from Mr. Graves' having recently found a clump of eight well-developed plants growing together.

That the hybrid here described has remained so long undetected may be owing partly to the comparative rarity of *A. Bradleyi* and partly to the fact that it and *A. pinnatifidum* possibly do not often occur in close proximity, in spite of their nearly coextensive ranges. *Asplenium Gravesii* is represented in the National Herbarium only by Mr. Graves' recent specimens.

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